

### **Remarks**

Claims 1-13 remain pending. Claim 2-10 and 12 are hereby amended. No new matter is being added.

#### **Claim Rejections--Section 101**

Claims 7-12 were rejected under 35 U.S.C. 101 as being directed towards software per se, without reciting any hardware features. Claim 7 is independent, and claims 8-11 depend from claim 7.

Accordingly, the independent claim 7 is hereby amended to now recite hardware features, specifically "memory for storing computer-readable instructions and data" and "a processor configured to access said memory and to execute said computer-readable instructions." With these amendments, applicants respectfully submit that this objection is now overcome.

#### **Claim Rejections--Section 102**

Claims 1-13 were rejected under 35 U.S.C. 102 as being anticipated by the Kaser reference ("Evaluating Inlining Techniques"). This rejection is respectfully traversed.

As stated on page 3 of the office action, "Specializing to cv-inlining" on page 10 of Kaser is cited against the claim limitation "if multiple call-chains in the call-graph have a common call site, inlining the common call site in one or more of the call-chains, without inlining the common call site into all of said multiple call-chains having the common call site." Applicants respectfully submit that the "Specializing to cv-inlining" of Kaser is technologically different from and does not read upon this claim limitation.

As defined in Kaser, "cv" to refer to an inlining policy where "The current versions of the caller and callee are always used." (Kaser, page 3, third line from the bottom of the page.) Similarly, Kaser defines "ov" to be an inlining policy where "The original version of the callee and the current version of the caller are always being used." (Kaser, page 3, second line from the bottom of the page.) Lastly, Kaser

defines “av” to be an inlining policy where “Any version of the caller and callee may be used.” (Kaser, page 3, bottom line of the page.) Thus, with the above definitions, it is clear that “Specialiation to cv-inlining” on page 10 of Kaser refers to specialization to the inlining policy where “The current versions of the caller and callee are always used.” In other words, the citation to Kaser refers to “specialization” in terms of using current versions of the caller and callee.

In contrast, the claimed invention pertains to “inline specialization” which is defined in the claim to mean “if multiple call-chains in the call-graph have a common call site, **inlining the common call site in one or more of the call-chains, without inlining the common call site into all of said multiple call-chains** having the common call site.” (Emphasis added.) As discussed in the specification, “We introduce the concept of inline specialization whereby a call site, that is common to more than one call chain, gets inlined in only some of the call chains. Thus the common call site gets inlined in a specialized manner.” (Page 26, lines 3-5.)

Therefore, the specialization defined in claim 1 does not pertain to which version of the caller and callee are to be used. Rather, the specialization recited in claim 1 pertains to the aspect where a call site may be **inlined into some, but not all, of the call-chains having the call site**. In other words, the type of “specialization” described in Kaser and type of “specialization” recited in the claimed invention are completely different.

Therefore, applicants respectfully submit that claim 1 clearly overcomes this rejection.

Independent claim 7 recites a similar limitation to the limitation discussed above in relation to claim 1. In particular, claim 7 recites “computer-readable instructions stored in said memory and configured **to inline a common call site in one or more call-chains in a call-graph, without inlining the common call site into all call-chains** having the common call site.” (Emphasis added.) Hence, for at least the above-discussed reasons, claim 7 also clearly overcomes this rejection.

Independent claim 13 also recites a similar limitation to the limitation discussed above in relation to claim 1. In particular, claim 13 recites “an inline specialization feature such that given a call-graph, if multiple call-chains in the call-graph have a common call site, **the common call site is inlined in one or more of**

**the call-chains, without being inlined into all of the multiple call-chains having the common call site.**" (Emphasis added.) Hence, for at least the above-discussed reasons, claim 13 also clearly overcomes this rejection.

Claims 2-6 depend from claim 1. Hence, for at least the above-discussed reasons, claims 2-6 also clearly overcome this rejection. Furthermore, applicants respectfully submit that dependent claims 2-6 are further patentably distinguished over Kaser due to the limitations recited in claims 2-6.

For example, claim 4 depends on claim 1 and has intervening claims 2 and 3. As such, in addition to the limitations of claim 1, claim 4 also requires the following limitations: "whenever a call site from routine x to routine y is inlined, new call sites are added from routine x to all routines inlinable within routine y"; **"materialization of summary information for the new call sites** added to the call-graph"; and **"addition of the new call sites to a global work-list** so that the new call sites are considered for inlining". (Emphasis added.) Applicants respectfully submit that the above combinations of limitations required by claim 4 is not taught or suggested by the cited "Multi-version Inlining Technique" on pages 6-8 and Figure 1 and related text of Kaser. In particular, neither "materialization of summary information for the new call sites" nor "addition of the new call sites to a global work-list" is taught or suggested by Kaser.

Claims 8-12 depend from claim 7. Hence, for at least the above-discussed reasons, claims 8-12 also clearly overcome this rejection. Furthermore, applicants respectfully submit that dependent claims 8-12 are further patentably distinguished over Kaser due to the limitations recited in claims 8-12.

For example, claim 10 depends on claim 7 and has intervening claims 8 and 9. As such, in addition to the limitations of claim 7, claim 10 also requires the following limitations: "whenever a call site from routine x to routine y is inlined, new call sites are added from routine x to all routines inlinable within routine y"; **"materialization of summary information for the new call sites** added to the call-graph is performed"; and **"the new call sites are added to a global work-list** so that the new call sites are considered for inlining". (Emphasis added.) Applicants respectfully submit that the above combinations of limitations required by claim 10 is not taught or suggested by the cited "Multi-version Inlining Technique" on pages 6-8 and Figure 1 and related

text of Kaser. In particular, neither “materialization of summary information for the new call sites” nor “the new call sites are added to a global work-list” is taught or suggested by Kaser. Therefore, based on these additional reasons, applicants respectfully submit that claim 10 is now further patentably distinguished over Kaser.

**Conclusion**

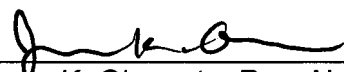
For the above-discussed reasons, applicant respectfully submits that claims 1-13 are now patentably distinguished over the applied art. Favorable action is respectfully requested.


The Examiner is also invited to call the below-referenced attorney to discuss this case.

Respectfully Submitted,

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